

2009

## Border Barometer

Border Policy Research Institute

University of Buffalo Regional Institute

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### Recommended Citation

Border Policy Research Institute and University of Buffalo Regional Institute, "Border Barometer" (2009). *Border Policy Research Institute Publications*. 99.  
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February 2009



# BORDER BAROMETER

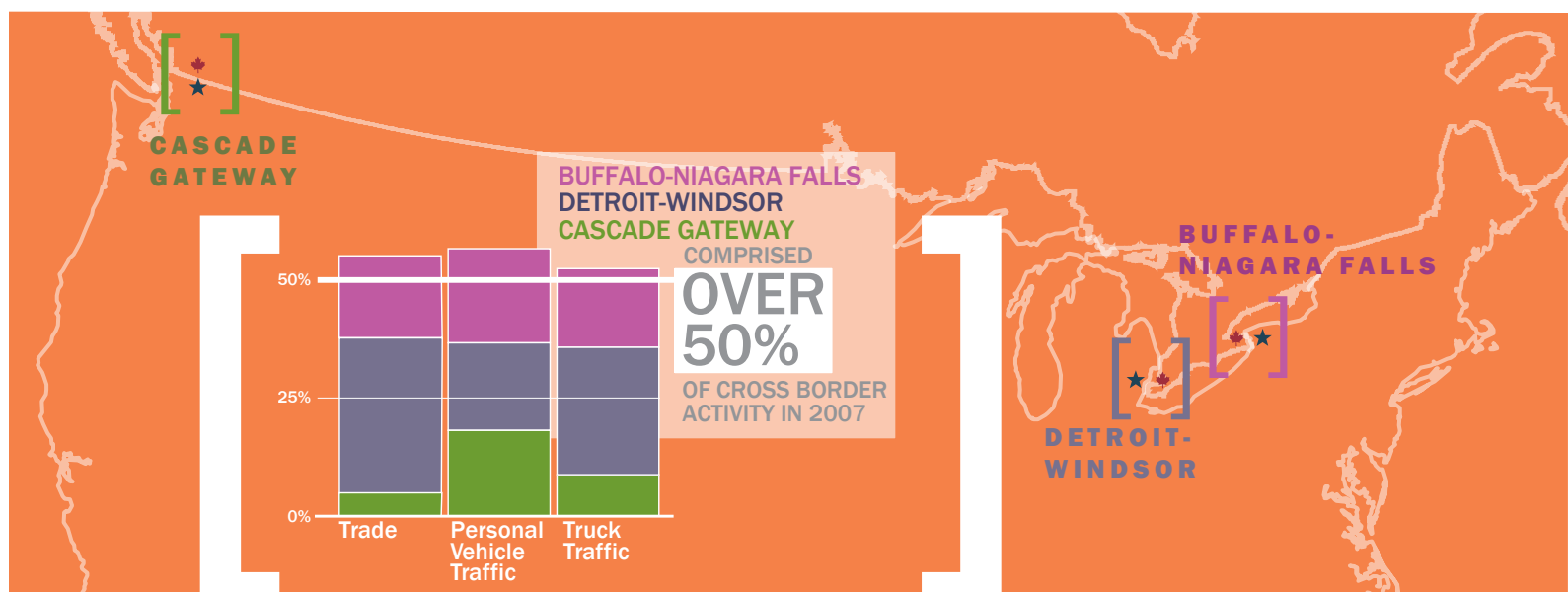
A pilot project of the University at Buffalo Regional Institute  
and the Border Policy Research Institute at Western Washington University



The well-being of North America is closely tied to how well the  
Canada-U.S. border facilitates interaction and ensures security.  
What happens at the border and how well does it work?

## A BORDER BAROMETER

Running 5,000 miles between two of the world's most interdependent nations, the Canada-U.S. border plays an important role, directly and indirectly, in the lives of millions of North Americans. Whether as separator or seam, obstruction or conduit, the border influences a wide range of economic and social interactions. The precise influence depends on a variety of border and related policies and the extent to which those policies facilitate the movement of goods, people, capital and ideas while ensuring the individual and collective security of the two countries.



Crafting policies that maximize both economy and security requires detailed knowledge and careful monitoring of the border and its distinct regions. Currently, a dearth of objective data and analysis on border performance leads to conflicting conclusions about the effectiveness of border policy, hampering informed policy prescriptions that enhance competitiveness.

To begin the process of filling this void and assisting productive dialogue, the **Border Barometer** is an effort to assemble data from disparate sources in a variety of accessible formats to provide researchers, policymakers and other interested parties with a better understanding of conditions and trends along the entire border and at major cross-border regions. This pilot **Border Barometer** outlines preliminary indicators of border conditions grouped under the broad categories of porosity (patterns of cross-border activity) and border infrastructure (physical and organizational connections) at the border's three busiest regions: Detroit-Windsor, Buffalo-Niagara Falls and the Cascade Gateway between Seattle and Vancouver.

### INDICATORS

#### POROSITY

TRADE FLOWS  
MODE SHARES  
TRADE RATIOS  
VEHICLE TRAFFIC

#### BORDER INFRASTRUCTURE

BINATIONAL NETWORKS  
DOCUMENT UPTAKE  
BOOTH DISTRIBUTION  
BOOTH TO TRAFFIC RATIO



BORDER  
BAROMETER

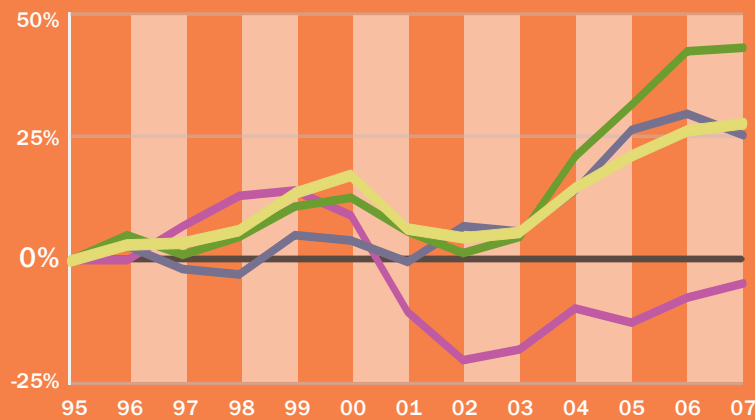
## POROSITY : TRADE FLOWS

The volume of trade between the world's largest trading partners is a key indicator of border porosity and economic interdependence. From the period immediately after NAFTA took effect in 1994 through 2007, trade between the U.S. and Canada was on a steady upward trajectory, with the exception of years interrupted by terrorist attacks and recession (2001-02). By 2007, the combined inflation-adjusted U.S. dollar value of imports and exports by truck and rail had risen by 28 percent since

NAFTA took effect. These border-wide patterns were largely reflected by activity at Detroit-Windsor and the Cascade Gateway, while trade through Buffalo-Niagara Falls lagged. Individually, truck- and rail-based trade posted gains of at least 20 percent border-wide for both imports and exports, with significant variation—especially for rail—at individual border regions.

## TRADE FLOWS

U.S. Trade with Canada, % Growth in \$ Value Since 1995

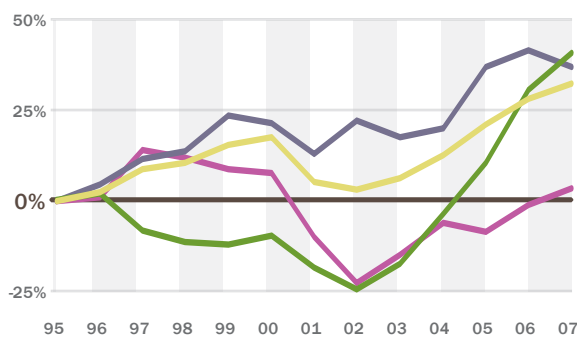


— BUFFALO-NIAGARA FALLS  
— DETROIT-WINDSOR  
— CASCADE GATEWAY  
— U.S. TOTAL

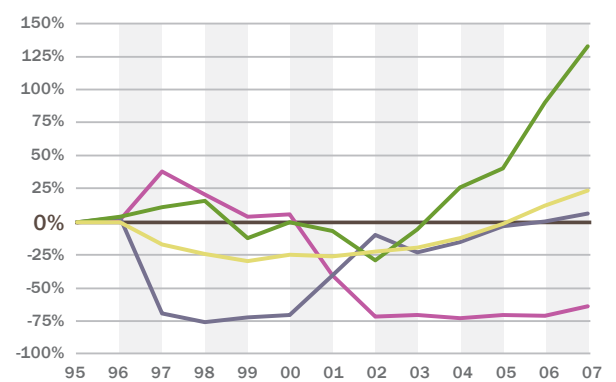
\*Includes imports and exports by truck and rail; growth rates based on inflation adjustment to 2007 U.S. dollars

### GROWTH IN U.S. EXPORTS TO CANADA, 1995- 2007

By Truck

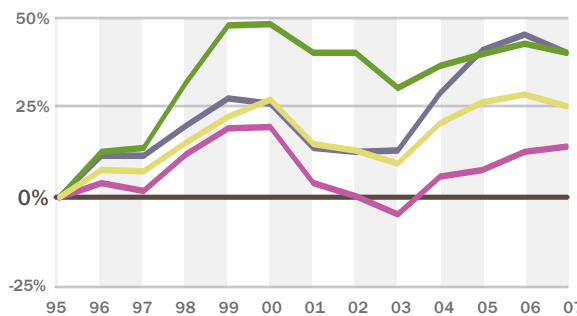


By Rail

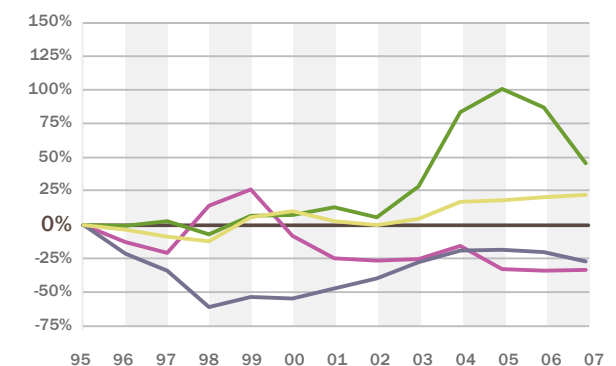


### GROWTH IN U.S. IMPORTS FROM CANADA, 1995- 2007

By Truck



By Rail



SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, North American Transborder Freight Data.

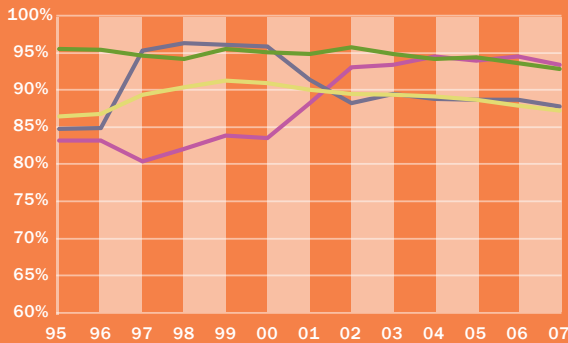
POROSITY : MODE SHARES

The share of surface-mode trade carried by truck versus rail has remained fairly stable over time along the border, with trucks carrying more than 85 percent of U.S. exports to Canada and 70 to 75 percent of imports from Canada. At Buffalo-Niagara Falls and Detroit-Windsor—regions separated by less than 300 miles—mirror-image fluctuations in the late 1990s indicate a temporary diversion of some rail traffic from Detroit to Buffalo during that period.

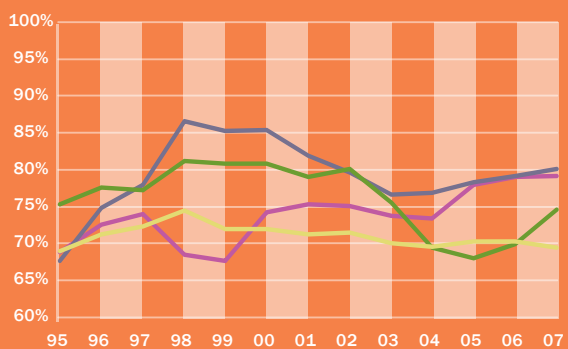
- BUFFALO-NIAGARA FALLS
- DETROIT-WINDSOR
- CASCADE GATEWAY
- U.S. TOTAL

MODE SHARES

Share of Exports Carried by Truck



Share of Imports Carried by Truck

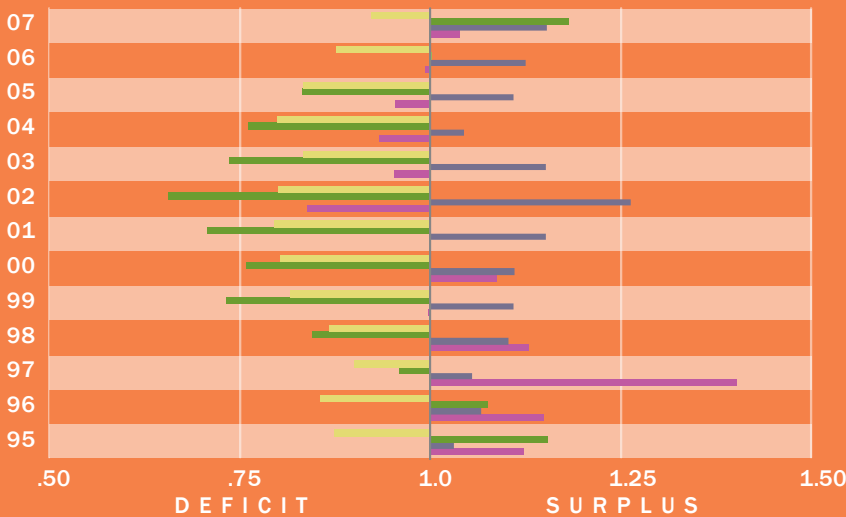


POROSITY : TRADE RATIOS

Since the implementation of NAFTA, the U.S. has carried a negative trade balance with Canada. At individual crossing points, however, there is wide variation in the ratio of exports-to-imports. Exports have dominated trade through Detroit-Windsor in every year since 1995, while imports have dominated at the Cascade Gateway in most years. At Buffalo-Niagara Falls, exports led in the late 1990s, followed by import dominance during most of the current decade. In 1995, 1996 and 2007, trade at all three border regions ran counter to the overall U.S. trade deficit with Canada.

TRADE RATIOS

U.S. Export-to-Import Ratios with Canada, 1995-2007



SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, North American Transborder Freight Data.

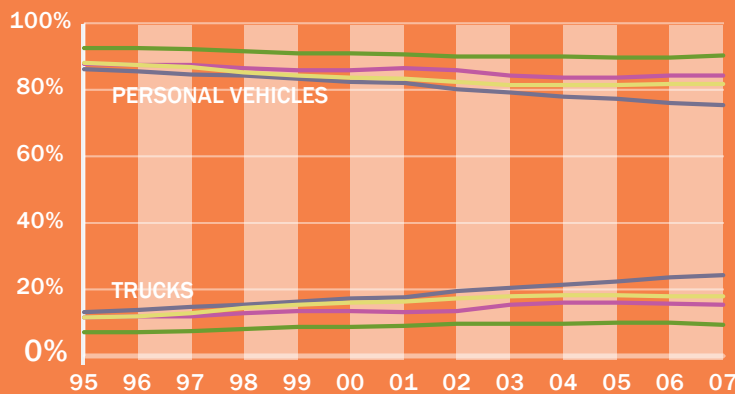
## POROSITY : VEHICLE TRAFFIC

As a share of total motor vehicle crossings, personal vehicles have slowly declined since 1995, from 89 percent of border-wide traffic to 84 percent. This decline reflects both a border-wide drop in personal vehicle traffic since 1995, as well as growth in truck traffic. The drop in car traffic at Detroit-Windsor and Buffalo-Niagara Falls began later than other areas, coinciding with 9/11 and the introduction of U.S. casinos in Detroit and Niagara Falls, NY, capturing some American gamblers who had previously crossed the border to casinos in Windsor and Niagara Falls, Ontario.

Patterns of bus and pedestrian traffic have been highly erratic since 1995 and, as with personal vehicles, are mostly down. The aftermath of 9/11 is dramatically reflected in both modes, with a noticeable and mostly unrecovered plunge in bus traffic (including intercity and charter vehicles) and a 2002 spike in pedestrian traffic at the walkable borders—a response to long vehicle lines amidst heightened security in the immediate post 9/11 period.

## VEHICLE TRAFFIC

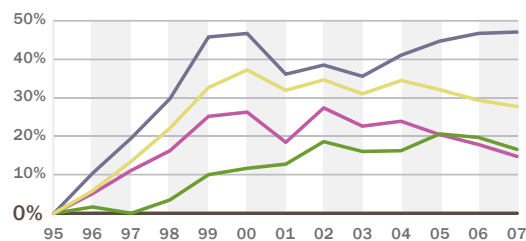
Trucks and Personal Vehicles as a % of Motor Vehicle Crossings, 1995-2007



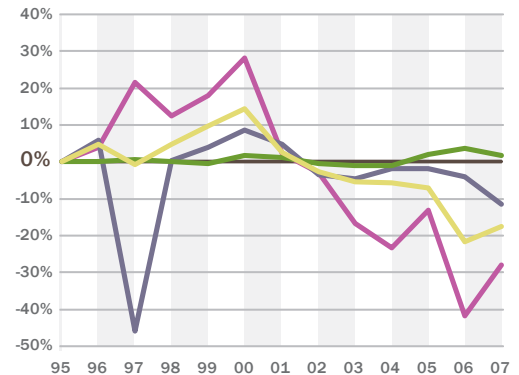
- BUFFALO-NIAGARA FALLS
- DETROIT-WINDSOR
- CASCADE GATEWAY
- U.S. TOTAL

## TRAFFIC GROWTH, 1995-2007

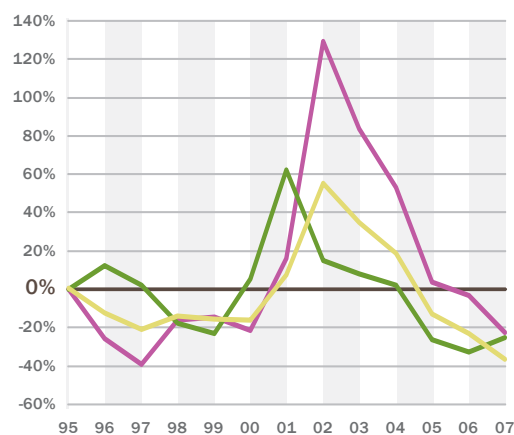
Growth in Truck Traffic



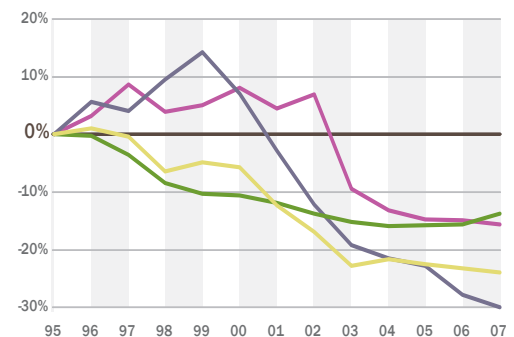
Growth in Bus Traffic



Growth in Pedestrian Traffic



Growth in Personal Vehicle Traffic






## BORDER INFRASTRUCTURE : BINATIONAL NETWORKS

Increasingly, binational networks and initiatives—the border’s “soft” infrastructure—are playing important roles in determining and implementing policy priorities. These include high-level intergovernmental initiatives led by federal, state, provincial and local governments that bring their collective policy-making authority to bear on one or multiple issues. The Pacific Northwest Economic Region (PNWER) in the Cascade Gateway region, formed in 1991, is the most mature example of a multi-purpose intergovernmental initiative along the border, with high-profile public and private partners who meet regularly to coordinate activities on more than a dozen distinct topics, including border performance. The most well-known single-purpose intergovernmental initiative on the border is the International Joint Commission, which helps Canada and the U.S. manage their shared water resources.

A wide range of urban and civil initiatives have developed and continue to develop along the border, characterized by leadership from the private and non-profit sectors and relatively ad hoc involvement by public officials. Rather than wielding direct policy-making authority, these groups try to influence or inform action on particular issues or the general advancement of a particular region.

Currently, the Cascade Gateway has a relatively strong infrastructure of binational networks and initiatives, compared to other regions along the border. Intergovernmental initiatives in Detroit-Windsor and Buffalo-Niagara Falls are significant in size and authority, but have narrower scope than Cascadia. At the civil level, initiatives in Cascadia and Buffalo-Niagara Falls cover a relatively broad mix of binational topics, while initiatives in Detroit focus primarily on trade and transportation.

## BINATIONAL NETWORKS

Organizational Networks	Cascade Gateway	Detroit-Windsor	Buffalo-Niagara Falls	Multi-Regional
<b>MULTI-PURPOSE</b> Intergovernmental Initiatives 	Pacific Northwest Economic Region (PNWER)  BC-Washington Memorandum of Cooperation	Ontario-Michigan Declaration of Partnership and MOU on Cooperation	Ontario-New York Declaration of Partnership and MOU on Cooperation  Niagara 10	Council of State Governments  National Conference of State Legislatures  Council of Great Lakes Governors  Great Lakes Commission
<b>SINGLE-PURPOSE</b> Intergovernmental Initiatives 	International Mobility and Trade Corridor  BC-Washington Transportation Protocol Agreement  BC-Washington Action Plan on Border Management	Ontario-Michigan Border Transportation Partnership  Ontario-Michigan Letter of Agreement Regarding Events at Nuclear Power Plants  Ontario-Michigan MOU on Trade  Detroit-Windsor Tunnel Corporation	Buffalo and Fort Erie Public Bridge Authority  Niagara Falls Bridge Commission  Niagara International Transportation Technology Coalition	International Joint Commission
<b>MULTI-PURPOSE</b> Urban and Civilian Initiatives 	Pacific Corridor Enterprise Council  Cascadia Project  Center for Canadian-American Studies, Western Washington University	Canadian Studies Center, Michigan State	University at Buffalo's Regional Institute  Niagara Regional Observatory	Great Lakes and St. Lawrence Cities Initiative  Northern Border University Research Consortium
<b>SINGLE-PURPOSE</b> Urban and Civilian Initiatives 	Border Policy Research Institute, Western Washington University  Shared Waters Alliance	Canada-U.S. Business Association  World Trade Center Detroit/Windsor  Wayne State/University of Windsor Exchange Agreement  Lower Detroit River Conservation Vision	World Trade Center Buffalo Niagara  Binational Tourism Alliance  Brock University/University at Buffalo Exchange Agreement  Canada-U.S. Trade Center, University at Buffalo	Council of Great Lakes Industries  Canadian/American Border Trade Alliance  Canadian American Business Council  Woodrow Wilson Center's Canada Institute

RELATIVELY STRONG

SIGNIFICANT

RELATIVELY WEAK

Note: Rankings based on relative scope and influence of networks and initiatives across the three examined regions.

Source: University at Buffalo Regional Institute and Border Policy Research Institute; based on categorization and ranking methods used in “The Emergence of Cross-Border Regions,” November 2005, from Canada’s Policy Research Initiative.



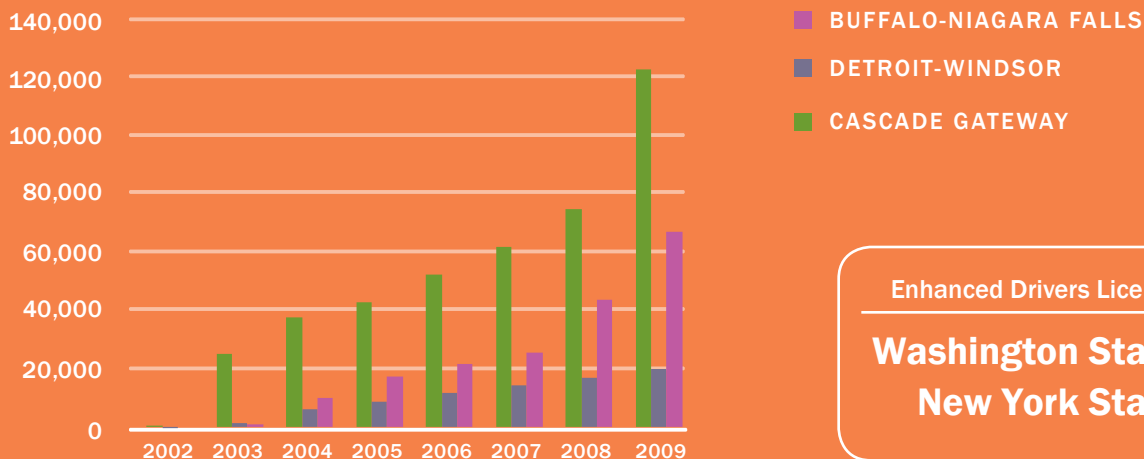
## BORDER INFRASTRUCTURE : DOCUMENT UPTAKE

To speed the processing of low-risk individuals and improve the efficiency of existing border infrastructure, programs utilizing RFID (radio frequency identification) have been implemented in the past few years. Enrollment in NEXUS has gradually increased since its implementation in 2002, rising to over 270,000 by February 2009. At the regional level, NEXUS has been most popular in the Cascade Gateway, which now accounts for nearly half of NEXUS cardholders. Enrollment in Detroit-Windsor and Buffalo-Niagara Falls, though lower than Cascadia, is considerable and growing.

More recently, enhanced drivers licenses (EDLs) have been introduced in a handful of states as an inexpensive alternative to the Western Hemisphere Travel Initiative's proof-of-citizenship document requirements. By the end of January 2009, Washington State, one of the first states to implement EDL, had issued close to 39,000 licenses. In New York State, whose EDL program began in September 2008, more than 18,000 licenses had been issued. Michigan will begin issuing EDLs in early 2009.

## DOCUMENT UPTAKE

NEXUS Enrollment, 2002-2009



### Enhanced Drivers Licenses Issued

**Washington State: 38,726**

**New York State: 18,277**

Sources: NEXUS data from U.S. Customs and Border Protection, based on statistics from NEXUS enrollment centers in Cascade Gateway (Blaine, Seattle, Vancouver Airport and Vancouver Downtown), Detroit and Buffalo-Niagara Falls (Buffalo, Whirlpool Bridge and Toronto Airport); Enhanced drivers license data from New York State Department of Motor Vehicles and Washington State Department of Licensing.





BORDER INFRASTRUCTURE : BOOTH DISTRIBUTION

Current infrastructure capacities in the three border areas reflect regional traffic conditions and the implementation of new programs and technology. Infrastructure at Detroit-Windsor, the border’s largest truck crossing, is arranged to accommodate high truck volumes and has the greatest number of commercial traffic booths, while heavy tourist and intraregional traffic in Buffalo-Niagara Falls demands a high capacity for personal vehicle traffic.

In each region, customs booths have been dedicated for NEXUS traffic and FAST (Free and Secure Trade) preclearance for trucks. In Buffalo-Niagara Falls, an entire bridge (Whirlpool) is dedicated to NEXUS travelers, reflecting a high level of coordination between regional crossings. Each region also has at least one crossing where flexible booths can alternate between NEXUS and standard auto traffic, depending on traffic conditions.

BOOTH DISTRIBUTION

	COMMERCIAL		AUTO		TOTAL BOOTHS		
	STANDARD	FAST	STANDARD	NEXUS OR FLEXIBLE			
Cascade Gateway	★ Peace Arch		  		4		
	🇨🇦 Douglas		      		10		
	★ Pacific Hwy	 		    		9	
	🇨🇦 Pacific	 		     		9	
	★ Lynden	 		  		5	
	🇨🇦 Aldergrove			 		3	
	★ Sumas	 		   		6	
	🇨🇦 Huntingdon			    		7	
							
		10	2	37	4	53	
Detroit-Windsor	★ Ambassador	     		      		32	
	🇨🇦 Ambassador	     		      		29	
	★ D-W Tunnel	 		     		10	
	🇨🇦 D-W Tunnel	 		     		10	
							
		28	2	45	6	81	
	Buffalo-Niagara Falls	★ Peace Bridge	     		     		18
		🇨🇦 Peace Bridge	   		    		19
		★ Rainbow Bridge			    		18
		🇨🇦 Rainbow Bridge			    		15
★ Whirlpool Bridge					  	3	
🇨🇦 Whirlpool Bridge					  	2	
★ Lewiston Queenston Bridge		   		   		11	
🇨🇦 Lewiston Queenston Bridge		  		   		9	
							
		16	2	67	10	95	

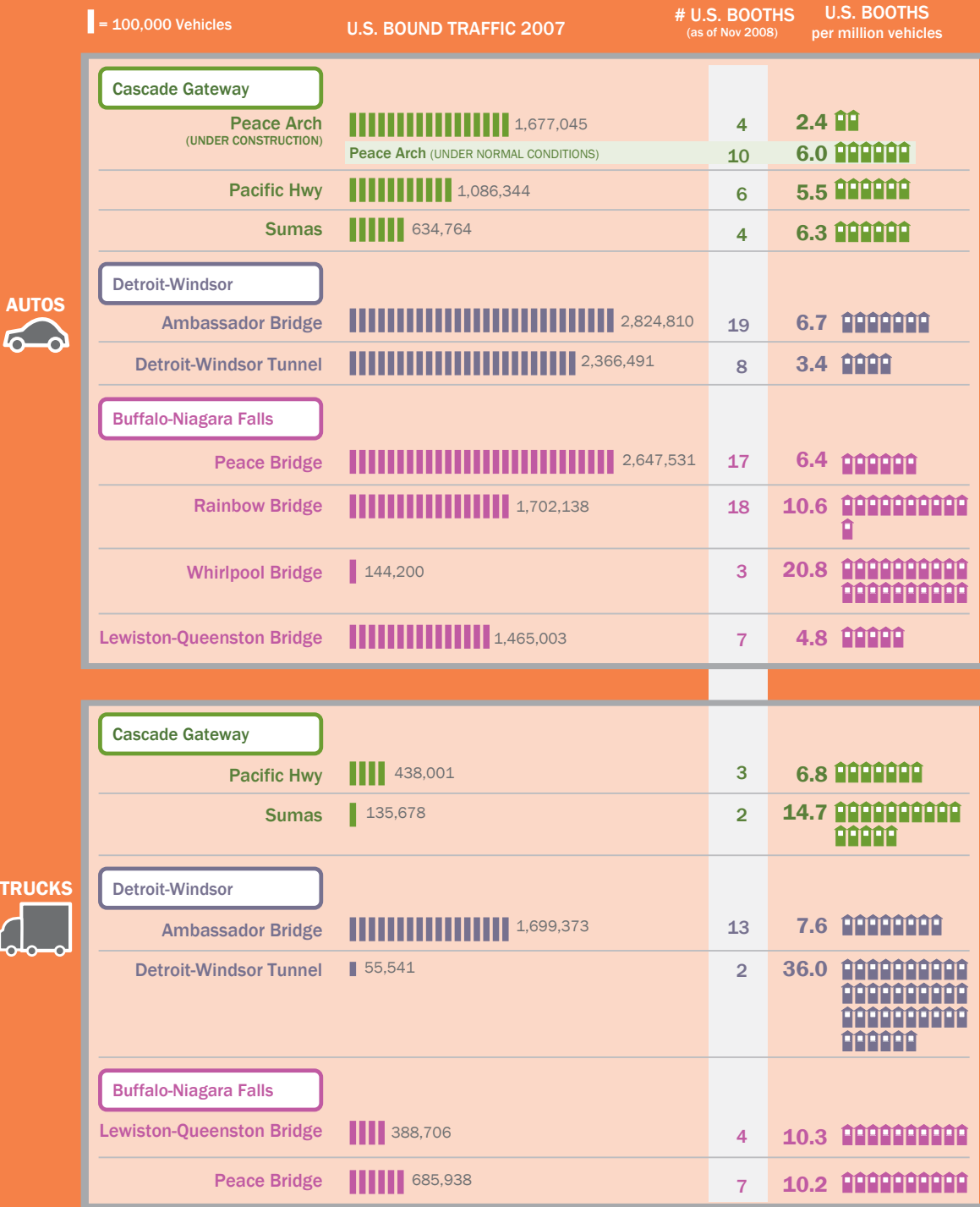
Sources: Buffalo and Fort Erie Public Bridge Authority (Peace Bridge), Niagara Falls Bridge Commission (Rainbow, Whirlpool and Lewiston-Queenston), Detroit-Windsor Tunnel Corporation, Detroit International Bridge Company (Ambassador Bridge), and Washington State Department of Transportation (Cascade Gateway).

BORDER INFRASTRUCTURE : BOOTHS TO TRAFFIC RATIO

Tracking and comparing the efficiency and speed of border crossings can play a critical role in understanding the effectiveness of border-wide policy and regional infrastructure management. Until compatible border-wide data are available on wait times and processing rates at individual crossings, however, methods for comparing the effectiveness of border management between regions are limited. A booths-to-traffic ratio for U.S.-bound vehicles shows that the most traveled crossings in each region have higher ratios for trucks than autos—reflecting the

more time-intensive process of truck clearance. For autos, the booth-to-traffic ratio ranges from 6.0 booths per million vehicles at the Peace Arch (Cascade Gateway) to 6.7 booths per million at the Ambassador Bridge (Detroit-Windsor). Meanwhile, truck ratios range from 6.8 booths per million at the Pacific Highway (Cascade Gateway) to 10.2 booths per million at the Peace Bridge (Buffalo-Niagara Falls). Extreme outliers include the all-NEXUS Whirlpool Bridge and the Detroit-Windsor Tunnel’s limited truck traffic.

BOOTHS TO TRAFFIC RATIO



Note: Peace Bridge has 11 auto booths and 7 booths convertible for truck or auto use. Table incorporates maximum booths per mode. Source: Border Policy Research Institute and University at Buffalo Regional Institute analysis based on traffic figures from the Public Border Operators Association and USDOT Bureau of Transportation Statistics. Analysis presented for U.S.-bound traffic only, with Canada-bound ratios roughly equivalent.

## TOWARD A COMPREHENSIVE BORDER BAROMETER

This inaugural Border Barometer provides a preliminary context for officials to consider when thinking about strengthening collaboration to enhance security and competitiveness, as well as the appropriate mechanism for accomplishing these goals. Data collected thus far tell a Northern-border-wide story of increased Canada-US economic interdependence amidst a decline in social interaction. Regional variation also emerges as a significant theme, reflecting a reality that should be taken into account when strategizing appropriate policies, allocation of resources and governance architecture, such as:

**International Treaties**  
**International Institutions**  
**Strengthened Regional Networks**  
**Flexible Federal Policies that Engage States and Provinces and Leverage Regional Variation**

Important information missing from this pilot effort—such as wait times, processing rates and security metrics, among others—reflect critical gaps in available data. In some cases data exist but are not accessible to the public. In other cases, data exist as fragments too narrow or incompatible to provide a broad, useful portrait of the border. And in others, reliable data simply do not exist.

Going forward, the creation of a mature, comprehensive Border Barometer requires input from potential users and a coordinated effort to ensure that inaccessible or unavailable data are collected and brought together to enhance border analysis and boost border performance at both continental and regional scales.

To lead this effort, the Border Policy Research Institute at Western Washington University, the University at Buffalo Regional Institute and other members of the Northern Border University Research Consortium, are establishing a Border Performance Data Agenda framed by the following questions:

**What questions about border performance need to be answered?**  
**What are ideal indicators of border performance?**  
**Can those indicators be compiled from existing data?**  
**How should unavailable or fragmentary data be collected?**  
**Who should collect new data, and what resources are required?**

Cooperation is crucial—between universities, commercial interests, and the long list of relevant federal, state and local agencies on both sides of the border. A well-performing international border of this size has many moving parts and all of them must work together to maintain a safe and efficient border—and by extension, a competitive North America.

Ultimately, a regularly updated and geographically expanded Border Barometer, in print and Web formats, can play an important cooperative function along the border—receiving input from a wide range of data producers and users and providing them with comprehensive context for understanding and managing the border.



# BORDER BAROMETER

This pilot project was made possible through generous support from Canada's Department of Foreign Affairs and International Trade through its Bordernet Initiative.

The Border Policy Research Institute at Western Washington University and the University at Buffalo's Regional Institute are members of the Northern Border University Research Consortium (NBURC), a newly formed group of six U.S. universities that collaborate on research projects related to the Canada-U.S. border. Other members include the University of Maine, Michigan State University, the University of North Dakota and University of Montana.



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